

R410A Phase Out

Transition To Low

GWP Refrigerants



Two Leading “Low GWP” Candidates to Replace R410A

Refrigerant	GWP	ODP
R-410A	2,088	0
R-22	1,810	.055
R-407C	1,774	0
R-32	675	0
R-454B	466	0
R-290 (propane)	3.3	0
R-744 (CO ₂)	1	0

700 GWP Limit

Denotes a
flammable
Ref



**A2L – “Mildly”
Flammable ASHRAE**

R410A vs R454B vs R32

Fluid	ASHRAE 34	GWP	Component Mix - Ratio %	Operating Pressure
		CO ₂ e		psia
R410A	A1	2,088	R-32/R-125 - 50/50	434
R454B	A2L	466	R-32/R-1234yf - 69/31	405
R32	A2L	675	R-32 - 100%	444

Discharge Temperatures:

Refrigerant R32 has (30 to 55°F) higher discharge temperature than that of R410A.

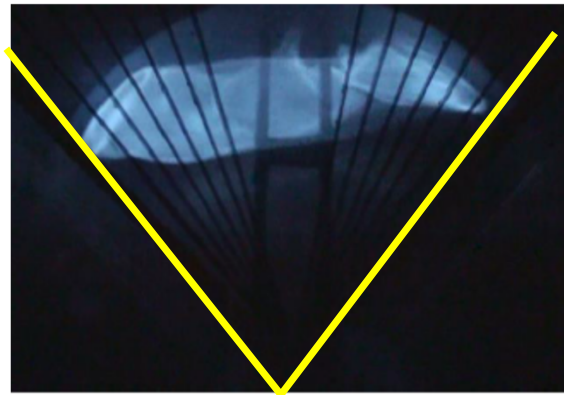
R410A and R454B: 115-125F

R32: 180-230F

R410A vs R454B vs R32

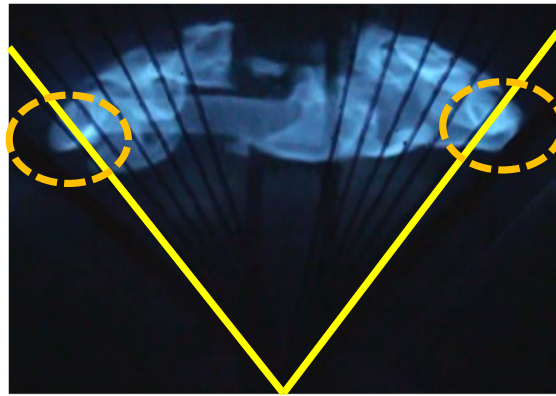
Fluid	ASHRAE 34	Efficiency	Capacity
		vs R410A	vs R410A
R410A	A1	-	-
R454B	A2L	=	<
R32	A2L	+	+

ASHRAE Refrigerant Flammability



Class 1 (R410A no oil)

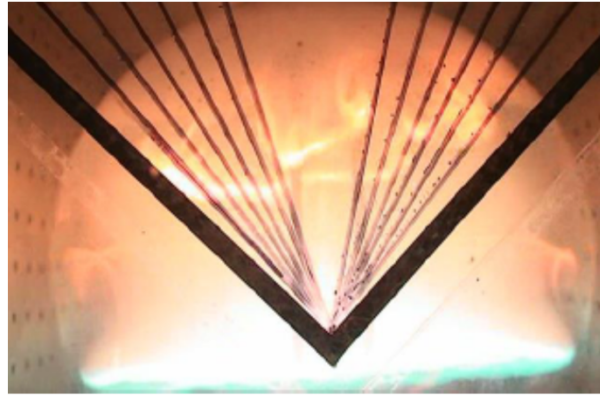
ASHRAE Refrigerant Flammability



Class 2L (R454B / R32)

ASHRAE Refrigerant Flammability

ASTM E681



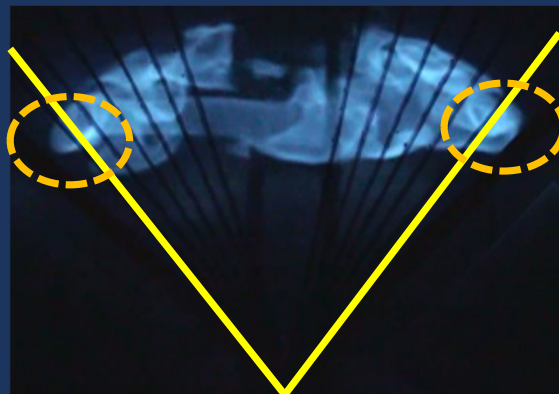
**Class 3
(Propane)**

ASHRAE Refrigerant Flammability

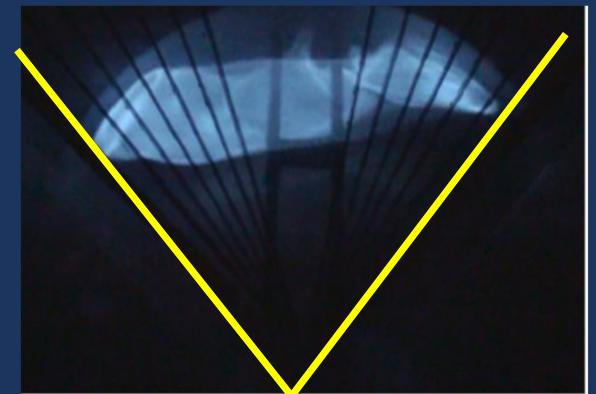
ASTM E681



Class 3 (Propane)



Class 2L (R454B / R32)



Class 1 (R410A no oil)